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IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his)
capacity as ATTORNEY GENERAL)
OF THE STATE OF OKLAHOMA and)
OKLAHOMA SECRETARY OF THE)
ENVIRONMENT C. MILES TOLBERT,))
in his capacity as the)
TRUSTEE FOR NATURAL RESOURCES)
FOR THE STATE OF OKLAHOMA,)

Plaintiff,)

vs.)

4:05-CV-00329-TCK-SAJ

TYSON FOODS, INC., et al,)

Defendants.)

THE VIDEOTAPED DEPOSITION OF
BERNARD ENGEL, PhD, produced as a witness on
behalf of the Defendants in the above styled and
numbered cause, taken on the 15th day of January,
2008, in the City of Tulsa, County of Tulsa, State
of Oklahoma, before me, Lisa A. Steinmeyer, a
Certified Shorthand Reporter, duly certified under
and by virtue of the laws of the State of Oklahoma.

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EXHIBIT

13

1 the Arkansas Natural Resource Commission, which is
2 responsible for oversight of poultry growers?

3 A Yes.

4 Q Okay. Were you provided with copies of the
5 materials that your attorneys received from that
6 process?

01:35PM

7 A Yes, and I believe there are a couple -- I
8 don't have those in my pile, but I believe they're
9 now called the Arkansas Soil & Water Conservation
10 Commission, that provided several spreadsheets for
11 Benton and Washington Counties that identify -- you
12 found one.

01:36PM

13 Q Go ahead. That identified what?

14 A Could I see one of those?

15 Q Sure.

01:36PM

16 A I don't think I've got a copy handy. So you
17 can pick any one of those is fine.

18 Q Let's start with what I've marked as
19 Deposition Exhibit 10. What is Deposition Exhibit
20 10, Mr. Engel?

01:37PM

21 A So Exhibit 10 is a spreadsheet from the
22 Arkansas Soil & Water Conservation Commission that
23 provides some data for Washington County and, as I
24 recall, these are provided for specific years, so I
25 don't know which year this one happens to be for.

01:37PM

1 It looks like that didn't make its way onto the
2 spreadsheet when that was moved into this format.
3 So this identifies a watershed code, where waste is
4 generated, provides estimates of number of acres on
5 which some of that was spread in some cases here,
6 and then provides other information about how much
7 is stored, how much is fed, but that looks to be a
8 very small number, how much is transferred and
9 other. One of the challenges with this data was
10 that -- that it's been impossible to date to get
11 clear definitions as to what some of these columns
12 mean, transferred in particular.

01:37PM

01:38PM

13 Q Well, what about with regard to tons
14 generated; do you have any confusion about that
15 column and information?

01:38PM

16 A No. So this is -- this is this agency's
17 estimate of tons generated based on user-supplied --
18 producer-supplied information and, as I recall,
19 there's a document that they provided in response to
20 some questions, they being the Arkansas Soil & Water
21 Conservation Commission, that raises doubts in their
22 minds about the validity of some of the tons
23 generated here.

01:39PM

24 Q We'll get to what I think is that document,
25 although I don't necessarily agree with your

01:39PM

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1 characterization of it, in a moment. Let me make
2 sure I'm clear. With regard to Deposition Exhibit
3 10, the information supplied by the Arkansas Soil &
4 Water Commission, on the tons of poultry litter
5 generated in the Illinois River watershed, did you
6 use any of that data in your analysis?

01:39PM

7 **A** Ultimately I did not use this in the analysis.

8 **Q** Okay. Do you understand that the watershed
9 code that's to the left-hand side of Exhibit No. 10
10 is the Illinois River watershed?

01:39PM

11 **A** There may be some -- I'm unclear that all of
12 these are the Illinois River watershed.

13 **Q** Okay.

14 **A** So there are multiple codes in here.

15 **Q** But you do have the understanding just from a
16 review of this document that the Arkansas Soil &
17 Water Conservation Commission collects and reports
18 information on the tons of litter generated by
19 watershed?

01:39PM

20 **A** Yes.

01:40PM

21 **Q** Okay. You chose not to use that information
22 in your analysis?

23 **A** Not use that is probably strong. So it was
24 certainly considered, and ultimately a method that
25 in my professional opinion was superior to piecing

01:40PM

1 together some of these data sources was used.

2 Q And that method being what we've been
3 discussing on Exhibit 27?

4 A Yes, that would be the one we've been
5 discussing on Exhibit 27. 01:40PM

6 Q So would it be fair to say you considered this
7 information and rejected it?

8 A It was not used. The other qualifier I would
9 place is that this was received only fairly
10 recently, so -- 01:40PM

11 Q Let me stop you there. When did your lawyers
12 ask for it?

13 MR. PAGE: Object. If you know.

14 A I have no idea.

15 Q Okay. You're not suggesting by your comment 01:41PM
16 that the State of Arkansas withheld information, are
17 you, that had been requested by the State of
18 Oklahoma in connection with this lawsuit?

19 A My understanding is that this had been
20 requested some time ago and that only recently had 01:41PM
21 it been received.

22 Q Okay. So you are suggesting that the State of
23 Arkansas delayed in the production of information
24 that was requested by the State of Oklahoma?

25 MR. PAGE: Objection. That's not what he 01:41PM

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1 stated.

2 **A** I didn't say that.

3 **Q** That's the way I interpreted it. You didn't
4 mean to suggest that?

5 **A** I didn't mean to suggest that. 01:41PM

6 **Q** Okay, all right. Let's keep going through
7 Arkansas records. Deposition Exhibit No. 11 is more
8 material received from the Arkansas Soil & Water
9 Conservation Commission that were included in the
10 materials that you produced in this case, Mr. Engel, 01:41PM
11 and this appears to relate to Washington County as
12 opposed to Benton County?

13 **A** Well, the prior one was Washington, and this
14 must be a different year.

15 **Q** It was. Okay. So once again, although you're 01:42PM
16 not certain as to what year, this is a record
17 provided by the Arkansas Soil & Water Conservation
18 Commission for the Washington County area by
19 watershed of tons of poultry litter generated;
20 correct? 01:42PM

21 **A** These are estimates of tons generated, yes.

22 **Q** Okay, and the fact that these records also
23 identify the bird type associated with particular
24 farms and the number of houses on those farms;
25 correct? 01:42PM

1 **A** Yes.

2 **Q** Okay. Did you consider any of this
3 information as part of your computations in arriving
4 at the 370,000 ton estimate of litter generation?

5 **A** So, again, this data was reviewed and 01:42PM
6 considered but not ultimately used because again in
7 my professional judgment, we didn't have enough
8 consistent information by piecing some of these
9 other things together to provide an accurate

10 estimate and so, thus, we used the technique that 01:43PM
11 we've been discussing affiliated with Exhibit 27.

12 **Q** Okay. Let's keep going. I think we're
13 getting a little repetitive, I apologize, but
14 Deposition Exhibit 12 again were materials produced
15 by you in connection with your work in this case. 01:43PM
16 It's another dataset from the Arkansas Soil & Water
17 Conservation Commission, this time in connection
18 with Benton County; correct?

19 **A** Yes.

20 **Q** Same type of data we've been discussing for 01:43PM
21 Washington county?

22 **A** Correct.

23 **Q** And once again with regard to this information
24 provided in Deposition Exhibit 12, you did not use
25 any of that information in your calculation of 01:44PM

1 estimated litter production for the Illinois River
2 watershed?

3 A Correct.

4 Q This document is Deposition Exhibit 13. It's
5 a little different format. Can you explain what 01:44PM
6 Deposition Exhibit 13 is?

7 A Yes. So this is from the Arkansas Natural
8 Resources Commission. This provides estimates of
9 poultry litter generated and then a whole series of
10 other categories as to where it may or may not be by 01:44PM
11 county within Arkansas.

12 Q And did you specifically request this
13 information in Deposition Exhibit 13?

14 A My attorneys requested this information.

15 Q Did you use the information reflected in 01:45PM
16 Deposition Exhibit 13 for any part of your analysis?

17 A Not directly, and let me do indicate, though,
18 that indirectly, you know, there are a few checks
19 and balances here that this helps with. So if you
20 look at Benton County, this estimates that 182,000 01:45PM
21 tons of poultry litter waste were generated in the
22 year of this report. This is labeled 2007, but I
23 believe this is a 2006 number, and in Washington
24 County it indicates 145,000 tons of poultry waste
25 were generated in that county for the year reported. 01:45PM

1 So indirectly, you know, when we do eventually
2 arrive at this 347,000 tons, documents like this
3 provide some confidence in the values that we've
4 computed with what we believe is a better technique.

5 Q Are Benton and Washington County, Arkansas 01:46PM
6 entirely within the Illinois River watershed?

7 A No.

8 Q Okay. So how, sir, does this county-wide
9 number provide you with confidence that what you
10 calculated as an Illinois River watershed number is 01:46PM
11 reasonably accurate?

12 A Well, if one looks at the approximate
13 proportions of those counties within the Illinois
14 River watershed and assumes that same proportion of
15 waste may have been generated in the Illinois River 01:46PM
16 watershed as to the area, sums those up, looks at
17 other supporting evidence from the Oklahoma side of
18 things, one quickly realizes that the waste, any way
19 you calculate it, is, you know, probably well in
20 excess of 300,000 tons. 01:47PM

21 Q That analysis, which I'm not sure if you've
22 conducted or not, we'll get to that in a moment,
23 assumes proportional distribution of farms within
24 and within outside the watershed based on the
25 percentage of a county that's in the watershed; 01:47PM

1 correct?

2 **A** One could refine that using the percentage of
3 pasture within and outside of the watershed as well,
4 and that -- that's probably a much better indicator
5 of presence of poultry. 01:47PM

6 **Q** Have you undertaken that analysis?

7 **A** Which analysis?

8 **Q** The one you just described of taking the
9 numbers from the Arkansas Natural Resources
10 Commission, looking at the percentages of pasture in 01:47PM
11 the counties that are covered by this reporting and
12 then arriving at an estimate of litter generation?

13 **A** I've not done that calculation carefully.

14 **Q** Well, have you done it uncarefully?

15 **A** I guess I've done that mentally approximately, 01:47PM
16 so it's not written down and, you know, I've not
17 proportioned out these exactly and summed them up
18 and then found all the corresponding data on the
19 Oklahoma side to do that.

20 **Q** But, Mr. Engel, given the fact that the State 01:48PM
21 of Arkansas reports litter generation in the
22 documents that we just reviewed by watershed as
23 opposed to just by county, why would you even go
24 through the process that you and I have just been
25 discussing of trying to take a county-wide number 01:48PM

1 and then make some mathematical assumptions to
2 arrive at an estimate; couldn't you just add up the
3 county -- I mean the watershed numbers in the State
4 of Arkansas' report?

5 **A** It's a good point you cut. So I guess if we 01:48PM
6 go back to these other documents and do the analysis
7 there, one could sum those up directly within the
8 Illinois River watershed. I have not done that.

9 **Q** You've not done that?

10 **A** I have not done that. 01:48PM

11 **Q** Okay, and is there a reason you've not done
12 that?

13 **A** Again, because -- to be consistent in the use
14 of our data and to apply things consistently, this
15 kind of data was not available in Oklahoma. So the 01:49PM
16 technique that ultimately was used, again, in my
17 professional judgment I think is a better technique
18 and provides a better estimate.

19 **Q** You mentioned consistency, and my question
20 there, sir, is, have you truly been consistent in 01:49PM
21 your treatment of records and information from
22 Oklahoma agencies versus Arkansas agencies in your
23 analysis?

24 **A** Well, the documents from each state are not
25 the same. So, therefore, it would be very difficult 01:49PM

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1 to do things consistently or treat any documents
2 consistently.

3 Q Isn't it true, sir, that in your analysis,
4 you've made consistent use of records and
5 information obtained from the Oklahoma Department of
6 Agriculture, but you've not made use in your
7 computations of records and data available from the
8 State of Arkansas?

01:49PM

9 A For the ultimate estimate of the 347,000 tons
10 of litter production, I guess there would have been
11 some Oklahoma documents in there, but those
12 documents were not to identify the amount of
13 production. Those documents were used in
14 identifying the integrator.

01:50PM

15 Q Okay. Well, let's take it step by step. You
16 did use ODAFF records to identify integrators on the
17 Oklahoma side; correct?

01:50PM

18 A That was one of the pieces of information used
19 in identifying integrators.

20 Q To your knowledge did Mr. Fisher use records
21 obtained from the State of Arkansas to perform a
22 similar analysis on the Arkansas side of the
23 Illinois River watershed?

01:50PM

24 MR. PAGE: Objection, assumes materials not
25 in evidence. I'm not aware of any information.

01:50PM

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